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Testing of Pressure Pipelines for Water by Internal Pressure

Pressure Pipes Made of Rigid PVC (Rigid Polyvinylchloride)

DIN 4279 Part 7

Innendruckprüfung von Druckrohrleitungen für Wasser;
Druckrohre aus PVC hart (Polyvinylchlorid hart)

The present new edition of DIN 4279, the scope of which has been extended to take into account all pipe materials presently in regular use, has been arranged into several parts:

Part 1 Testing of pressure pipelines for water by internal pressure; general information

Part 2 Testing of pressure pipelines for water by internal pressure; pressure pipes made of ductile cast iron

Part 3 Testing of pressure pipelines for water by internal pressure; pressure pipes made of ductile cast iron and steel pipes; with cement-mortar lining

Part 4 Testing of pressure pipelines for water by internal pressure; steel pipes with and without bitumen lining

Part 5 Testing of pressure pipelines for water by internal pressure; reinforced concrete pressure pipes and prestressed concrete pressure pipes

Part 6 Testing of pressure pipelines for water by internal pressure; asbestos-cement pressure pipes

Part 7 Testing of pressure pipelines for water by internal pressure; pressure pipes made of rigid PVC (rigid polyvinylchloride)

Part 8 Testing of pressure pipelines for water by internal pressure; pressure pipes made of rigid PE (rigid polyethylene) and soft PE (soft polyethylene)

Part 9 Testing of pressure pipelines for water by internal pressure; specimen pages for test reports

Part 10 Testing of pressure pipelines for water by internal pressure; synopsis

The properties of the materials used in plastic pipes cause an expansion of the pipe during the pressure test. This in turn affects the test result. Allowance is made for this special feature of the material in the present Standard.

Changes in the temperature of the pipe wall during the test can further influence the test result. This is due to the relatively high coefficient of thermal expansion of PVC. During the pressure test the temperature should therefore be maintained as constant as possible, or the temperatures at the beginning and end of the pressure test should show as little deviation from one another as possible. For this reason temperature measurement in accordance with DIN 4279 Part 1 is of particular importance.

All pressures specified in this Standard are overpressures.

1 Scope

This Standard, together with DIN 4279 Part 1, applies to the pressure test of pressure pipelines constructed with the pressure pipes specified in Section 2.

2 Range of application

This Standard is applicable to pressure pipelines constructed with pipes made of rigid PVC (rigid polyvinylchloride) in accordance with DIN 19 532.

3 Pressure test procedure

Apart from the pressure test procedure in accordance with DIN 4279 Part 1, pressure pipelines made of rigid PVC can also be tested by means of a brief test.

4 Execution of test

4.1 Preliminary test

The preliminary test must be completed before the main test may be commenced.

The purpose of the preliminary test is to arrest the change in volume inside the PVC pressure pipeline, which is dependent upon internal pressure, temperature and time, to such an extent that, during the main test immediately following, firm conclusions may be drawn as to the watertightness of the test section.

The preliminary test is carried out with the test pressure.

The test lasts at least 12 hours.

4.2 Main test

The main test takes place immediately upon completion of the preliminary test. Times for the duration of the test should be taken from the Table below:

Nominal width (NW)	Duration of test h ≈
up to 150	3
200 to 400	6

4.3 Brief test

The brief test may only be used for test sections up to ≈ 30 m in length and nominal widths up to 50 NW.

The test pressure is 1.5 x the nominal pressure.

The test lasts 1 hour.

5 Assessment of the test

5.1 Main test

The conditions of testing can be considered to be fulfilled if, during the test, the pressure did not drop by more than 0.2 bar.

5.2 Brief test

The conditions of testing can be considered to be fulfilled if, after 1 hour the pressure has not dropped by more than 0.5 bar.

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